AGING POPULATION AND ITS EFFECT ON THE BOONE FIRE DEPARTMENT

EXECUTIVE PLANNING

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ABSTRACT

The problem was that the cost of providing basic life support (BLS) service to the citizens of Boone had been increasing. The purpose of this research was to determine if the City of Boone's population was aging and what impact it might have had on the number of emergency responses for the Boone Fire Department.

This study used evaluative and historical research to answer the following research questions:

1. What are the demographic trends in regards to the aging of the United States?
2. What are the demographics in regards to the aging of the population in the State of Iowa, Boone County, and the City of Boone?
3. Has an increase in the age of the population in my community contributed to an increase in the total number of EMS responses and the cost associated with delivering these services?

The procedure involved the analysis of a comprehensive study done for the City of Boone in 1996, extracting past, present, and future population demographics. In addition, a personal interview was completed with Ms. Vicki McCambridge, Director of Boone County Public Health and Home Care Services, in regards to the elderly population that her organization was serving. Finally, an analysis of all EMS responses by the Boone Fire Department in calendar years 1989 - 1998 to determine number of responses and age of the patients.

The results indicated that our population of elderly was getting older and larger. Their demands for service from the Boone County Public Health and Home Care Services had increased as much as 50 % in the last five years.

In the data for the ten year period, 1989 - 1998, there was not a consistent increase in calls for service for those 65 years or older. However, the data did indicate that while those 65 or older made up approximately 19 - 20% of the total population, they were responsible for approximately 50% of the total calls for EMS service. From the data it was possible to determine what age group utilized the EMS system the more frequently.

The Boone Fire Department should expect an increase in the near future in the use of the EMS system by the elderly. Recommendations include, documenting and analyzing the type of injuries and illnesses the elderly are experiencing, to identify high probability incidents. Initiate partnerships with other agencies who deal with the elderly to help educate and prevent accidents, injuries, and illnesses. Finally, to initiate a system whereas the Boone County Hospital will help defray some to the costs incurred by the Boone Fire Department in the delivery of EMS service.

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INTRODUCTION

The problem was that the cost of providing basic life support (BLS) as an emergency medical service (EMS) to the citizens of Boone had slowly but surely been on the rise. The additional cost of wages in the form of overtime, expenses associated with continued and additional training for personnel, and the cost of purchasing and maintaining additional medical equipment were becoming a large part of our overall operating budget. With this increase came questions from City administration about what was causing the rise in costs and if the money being expended was, in fact, money well spent.

The purpose of this research is to determine if the general population of our community was increasing in age, if it was a contributing factor in the total number of EMS runs that the Boone Fire Department were responding to, and what, if any, impact it was having on the budget.

Using evaluative and historical research to assist in determining the impact of an aging population on our overall budget, the following questions were asked:

1. What are the demographic trends in the nation in regards to the aging of the United States population?
2. What are the demographics in regards to the aging of the population in the State of Iowa, Boone County, and the City of Boone.
3. Has an increase in the age of the population in my community contributed to an increase in the total number of calls and the costs associated with delivering emergency medical services?

BACKGROUND AND SIGNIFICANCE

The Boone Fire Department had been providing fire protection for the citizens of Boone for approximately 110 years, responding to the call for fire suppression at the sound of the alarm. As time passed, the Boone Fire Department found itself, as many departments had, responding to less and less fire calls. While this is certainly an outcome that fire departments had been striving for, it did raise the question of what other services could we perform to help our community and its citizens. The logical expansion of our services included moving into the delivery of emergency medical services (EMS). At this time we had several members of our department already schooled in crash injury management, first aid, CPR, and had been responding to vehicle accidents and entrapments to provide extrication only. For the department to be efficient in our delivery of service and to have an ability to truly effect the safety and well being of our citizens, we realized a higher level of certification and an expansion of our services was necessary. A decision was made to train all personnel to the emergency medical technician-ambulance (EMT-A) and to develop standard operation guidelines (SOG's) to allow us to tier with our local county hospital based ambulance service.

This decision, reached in 1986, was met with opposition from various groups. The county based ambulance service questioned our overall motives and whether we were attempting to take over the advanced life support (ALS) and transport service. We assured them at this time we had no interest in transporting or certifying at the ALS level. Our only desire was to serve the citizens in our community and attempt to reduce some of the response times that had been occurring due to awaiting second or third crews from the hospital to respond to EMS incidents. The second group that expressed concern was the City Council. They questioned the necessity of what they considered a duplication of services and were concerned about the legal ramifications, liabilities, and the costs of providing these services.

The final opposition came from some members of the fire department. Some of the more senior members indicated that they were firefighters hired to extinguish fire and were not going to play nurse or doctor. Many felt that additional duties would have a negative effect on their ability to perform what they considered their primary responsibility, fighting fires.

Fortunately, most of the opposing views were negated with a thorough dose of education. We informed them of what we intended to do, how we would do it, how much it would cost, and how it could positively impact the citizen's safety, quality of life, and the citizen's view of their fire department and it's members.

On July 1, 1986, we began our journey into the world of EMS. All members of the fire department were trained to the EMT-A level and SOG's were developed to provide a framework for our delivery of EMS service. Since that time, we have never looked back and have now certified all members to emergency medical technician-basic (EMT-B) level. The working relationship with the county based ambulance has flourished and the outcome has been beneficial to the fire department, the hospital, the city, and it's citizens. Members of the department have accepted this responsibility and have developed a sense of pride in their ability to respond to medical emergencies and to truly make a difference. They not only consider this responsibility as part of their job, they find it to be one of the most rewarding aspects of their job.

The city council has accepted the fact that EMS fits well into the fire department's delivery of services and realize that this service has been beneficial to the community. However, with the ever shrinking budget facing the city, administration was compelled to ask the hard questions about the cost and benefits of this service.

In the Executive Planning class, a key element identified in developing a strategic plan was to identify your customers and their needs. With this data we can identify the largest user of the Boone Fire Department EMS service.

LITERATURE REVIEW

Nation wide trend

" Want to live to be 100?" That was the question posed to a survey group by the American Association of Retired Persons, the largest advocate group for people over 50. Surprisingly, 63 % indicated that the had no desire to live to be 100. The survey did indicate, however, that the average American would prefer to live to about 91 (Lester, 1999).

Projections would indicate that this may truly be a possibility in the future. Official calculations in recent years for the life expectancy of new born babies were just over 73 for males and just over 79 for females. For those who live to age 65, men on average live an additional 15 to 16 years and women an additional 19 to 20 years (Lester). In fact, the number of years added to life expectancy in the 20th century has been 28 years (Vierck, 1990).

Statistics indicate that at the turn of the 19th century, only 1 of 25 Americans reached the age of 65. By 1990, that number had increased to 8 of 25 Americans being at least 65 years of age (Keister, Blixen, 1998).

The country's population is aging. In 1996 there were 34 million people age 65 and older in the United States. In 2030, a short generation from now, there will be 70 million people in this age group. Many more of tomorrow's seniors will be classified as very old (85 and older) (Ulrich, 1998).

The so called very old Americans, those 85 and older, made up the most rapidly growing age group that increased 274% from 1960 to 1994. This population is projected to reach 7 million by the year 2020 and possibly between 19 and 27 million by the year 2050 (Gunby, 1996).

This group has created a politically potent force and medical consumer group with economic clout. Many debilitating conditions previously thought to be the inevitable results of old age can be ameliorated with treatment. By means of preventative medicine, early intervention at the first sign of disease, and intensive rehabilitation, the medical community can assist the elderly in not only living longer but healthier (Gurland, Breuer, Chachkes 1995).

The body of study and research in respect to the elderly has flourished. Prior to the 1950's almost no one was identified as a gerontologist. Now there are over 6,000 professional members of the Gerontological Society of America. In addition, there are literally thousands of courses offered at major colleges and universities. Furthermore, there are over 40 professional journals and several dozen books in gerontology published each year (Palmore, 1995).

One needs only to look at the advertising world to realize that the American consumer is aging and companies are opening up to a positive image of aging (Dychtwald, Flower, 1990).
It is obvious that today's business and industry and the advertising associated with their products, are aimed at our senior citizens. Gone are the ads depicting senior citizens as frail and confused and in their place are advertisements heralding the wonderful world of the older American.

The United States currently ranks third in the world in elderly (65 or older) population and the Bureau of Census is predicting that eight states, California, Arizona, Georgia, Washington, Nevada, Colorado, Alaska, and Utah, will double their elderly population by the year 2020 (Gunby).

While the percentage of older Americans vary from state to state, in every state the number of senior citizens as a percentage of the total population increased between 1990 and 1996 (Ulrich).

The so called baby boomers born between the years of 1946 and 1964 are coming of age. Those born in 1946 will reach age 65 in just 12 years and the last of the boomers born in 1964 will reach this milestone in 2029 (Gunby). Many of the baby boomers have received better health care and enjoyed better work environments than their predecessors and will enter their retirement years healthier than the previous generations (Beck, Chumbler, 1997). Unfortunately, the children and grandchildren of the boomers (a much smaller generations) must pay for their care in the future when these older Americans begin to utilize the health care system.

It was also reported that the number of persons 85 or older who live alone rose from 39% in 1980 to 47% in 1990 with further predictions that the number of elderly living alone will increase by 250% by the year 2030 (Richter, 1994). This trend for more of the elderly to live alone shall increase the dependence on public EMS service delivery.

Changes in family structure will put an extra burden on seniors. Family size has decreased dramatically since the baby boomer generation. Many of the children of the boomers have moved away from town, out of state, or even out of the country. A majority of the daughters work outside the home and are more likely to be a single parent. As a result, the retired boomers will have fewer children available to care for them, increasing the need for help from the public sector EMS service (Elashi, 1997).

Between 1980 and 2040, a 41% increase in general population is expected, but a 160% increase in those 65 years old or older. In addition, an increase of 27% in hospital days per year is expected for the general population by the year 2000, but a 42% increase in hospital days per year for

those 65 and over and a 91.2% increase for those 75 and over (Callahan, 1990). Presently almost one of every three United States health dollars benefit the 11% of our citizens aged 65 or above (Sager, 1990).

Associated with this increase for medical treatment, one study predicts that within the next 15 years many doctors will be retiring, creating a shortage of doctors for this large group of seniors (Elashi). Many feel that the United States government is ill prepared to provide medical care for this rapid increase in the elderly population. Rosenwaike (1985) states, "To date, neither government, the medical profession, nor the public at large have fully recognized or adequately planned for the many economical, social, and ethical dilemmas raised by an aging population" (p. 142).

State of Iowa and Boone County trend

Statistics would verify that this nation wide trend of older and older Americans is also occurring in the State of Iowa and Boone County. In Iowa between 1970 and 1980, the percentage change in the ratio of 85+ / 65 rose 34 % (Rosenwaike).

A study of the 99 counties in Iowa by the University of Iowa College of Public Health and the Iowa Department of Public Health reported that 24 of those counties had a population of 20,000 to 50,000. With a population of 26,233, Boone County was included in this group. Of the 24 counties, Boone County had the fourth highest population (18.1%) of those 65 or older, with only Washington County, Wapello County, and Fayette County having more with 18.5%, 18.9 and 19.1% respectively (University of Iowa College of Public Health, 1999).

Those counties with 50,000 or more (10 were identified), which were defined as Metropolitan Statistic Areas, tended to have less of their total population (12%) meeting the criteria of 65 or older.

While the smallest counties of 10,000 or less (18 were identified), seemed to have the highest percentages of those 65 or older (21.6%). Finally, the group of counties with populations of 10,000 to 20,000 (47 were identified), those 65 or older constituted 19% of their population (University of Iowa College of Public Health).

While other states have more residents 100 years or older, the State of Iowa has the highest percentage of residents who are 100 years or older at .0261 % of our total population, followed by South Dakota at .0256 %. Three other Midwestern states, Nebraska, Kansas, and Minnesota finished in the top ten. Statistics indicate that Boone County has 22 individuals that are 100 years of age or older (Faust, 1999).

PROCEDURES

To complete the research to answer my three questions, I acquired a copy of a comprehensive study for the City of Boone, completed in 1996. This study, which included demographic information on the City of Boone, also included projections for it's future population.

I also interviewed Vicki McCambridge, the Director of the Boone County Public Health and Home Care Services. From this interview I hoped to determine the population they were providing service to, the programs involved, the amount of usage of their service, and if any increase had occurred.

The final procedure consisted of compiling all emergency run reports for the Boone Fire Department for calendar years 1989 through 1998, a period of 10 years. From these reports I then categorized these into calls for EMS service and calls for other services. With the number of calls for EMS service determined, I then noted the age of the patient that we had provided service for. Generally accepting the age of 65 or older as being elderly, I categorized the patients into eight age groups, 65-

69, 70-74, 75-79, 80-84, 85-89, 90-94, 95-99 and 99 or above. Using this data I was able to track the usage of the EMS system by age of patient, year by year, and also for the 10 year period.

ASSUMPTIONS AND LIMITATIONS

Run reports prior to 1997 were completed by hand, stored on paper, and were generally completed using the interpretation of the report creator. Therefore, for the years 1989 through 1996 I physically searched through all of the paper files to determine the information I needed. I found that some of the reports had incomplete and / or insufficient information in regards to the age of the patient. In these instances where I was not able to identify the correct age, I did not include that call for service in the study. This process may have reduced the total number of those 65 or older in the study.

During the process I found that many times there were multiple calls for service from the same person in a short time frame, sometimes two or more requests per month. I chose to include these multiple calls although they might skew the total numbers of individuals 65 or older who requested service.

Lastly, population projections are just that, projections. There is no guarantee that these projections and the numbers attached to them will occur.

RESULTS

The comprehensive study completed for the City of Boone revealed that the City of Boone in fact had a large population of those 65 years or older. Data for 1970 indicated that approximately 19.45 % of the population in the city of Boone was 65 years or older (Appendix A). Data for 1980 indicated that those 65 or older made up approximately 19.25 % of the population (Appendix B). Figures for 1990 showed that approximately 19.43 % of the population for the city of Boone was 65 years or older (Appendix C).

Projected population studies for the year 2000 show that the population for the City of Boone will include a group of people 65 or older representing approximately 20.35 % of the total population (Appendix D). By the year 2015, it is estimated that an elderly population will represent 20.1 % of the citizens of Boone (Appendix E). A projected increase for the entire population of the City of Boone between the years 1990 and 2000 is .0167%. While the increase in those 65 year old or older is estimated at a full one percent.

The interview with Vicki McCambridge revealed that programs for the elderly in Boone have increased significantly. During the last ten years it had become necessary to bring all of the home care services under one organization to better administer and deliver the required services.
Their services include skilled nursing services, home care aides, physical therapy services, occupational therapy services, medical social services, and Lifeline Emergency Response System. Additional services are elderly abuse awareness and prevention, Hospice services, Meals on Wheels, congregate meals, health screening clinics, immunizations clinics, and blood pressure screening clinics. Ms. McCambridge stated that looking at just the growth of the programs would indicate the size and influence of the elderly population.

Emphasis was placed on wellness and illness prevention, educating the elderly on how to stay healthier. The desire of the majority of the elderly is to stay at home and treat their illness with outside assistance. Ms. McCambridge stated that over the last few years there had been a marked increase in the demand for these services. Her best estimate was a 50 to 60% increase in just the last five years. The lack of immediate family living close by has made the need for help from other outside organizations imperative.

The results of the data collected from the run reports for the ten year period, 1989 to 1998, revealed that the Boone Fire Department had provided services to 5217 patients. Of those patients, 2664 were 65 or younger and 2553 were 65 years or older. These 2553 individuals represent 48.9% of all patients that service was provided to (Appendix F).

The percentage of those 65 or older receiving service ranged from a high of 67.66% (339) of all EMS responses in 1992 to a low of 40.83 % (216) in 1997, during the ten year period. Of these two years 1997 actually had the higher number of total EMS calls with 529, compared to 501 in 1992 (Appendix G).

A total of 10 years of past runs were used in this study, with eight age groups (Table 1).

Table 1

Number of EMS Patients 1989 - 1998 by Age and by Year

Year	65-69	70-74	75-79	80-84	85-89	90-94	95-99	99+
1989		35	52	44	32	36	6	4	0
1990		33	56	55	71	40	12	6	0
1991		33	50	66	49	44	23	7	1
1992		35	81	71	75	41	30	4	2
1993		26	45	68	56	38	25	4	0
1994		39	44	62	57	32	19	7	0
1995		38	54	66	57	44	12	19	0
1996		23	35	51	44	39	11	2	0
1997		34	21	47	38	52	18	6	0

1998	25	31	55	37	51	21	2	4
Total	321	469	585	516	417	177	61	7

The percentages of each age group in respect to the to the total number of EMS responses for those 65 years of age or older (Table 2).

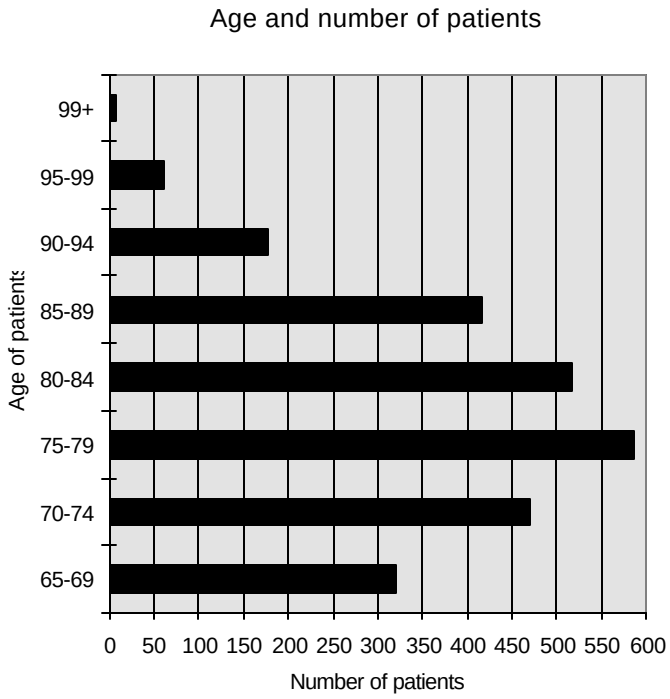
Table 2

Total Number and Percentage of Each Age Group for the 10 year period

Age	Number	Percentage
65-69	321	12.6%
70-74	469	18.4%
75-79	585	22.9%
80-84	516	20.2%
85-89	417	16.3%
90-94	177	6.9%
95-99	61	2.4%
99+	7	0.3%
Total	2553	100.0%

While Table 2 shows the total number and percentages, I feel that the graph below, visually represents the various age groups, and their use of the EMS system (Graph 1).

Graph 1



DISCUSSION

The purpose of this research paper was to determine if my community's population was getting older and if it was getting older, was it affecting the number of EMS runs by the Boone Fire Department. The data would indicate yes and no. Data from all sources indicated that the population of the United States, the State of Iowa, Boone County, and the City of Boone was aging. Those 65 or older presently comprise 12.6% of the United States population with an expected increase to 20% in the next three

decades (Seeman, Alder, 1998). While Iowa's population is increasing slowly, the group 65 or older presently is increasing at a rate slightly higher than the national average (University of Iowa College of Public Health). The fact that people are getting older is only one aspect of this trend. With this increased longevity, the size of the elderly population is booming. While the growth in the numbers of older persons simply refers to the actual number of or projected number of people over a certain age, the aging of population (the process through which a population as a whole becomes older) is a ratio (Kinsella, 1994).

The process of population aging is primarily determined by fertility (birth) rates and secondarily by mortality (death) rates (Katz, Karuza, 1992). High fertility rates during the 40's, 50's, and 60's created the baby boomer generation. These boomers are presently enjoying a period of low mortality and are expected to increase the swelling number of elderly in the United States in the next few decades.

The data from my study on the 10 year period, indicate that those individuals 65 years or older constituted approximately 19 - 20% of the total population for the City of Boone. Yet, when it came to EMS responses, they accounted for nearly 50% of the total. This clearly indicates that those 65 years or older utilize the EMS system at a higher rate than those younger than 65.

The data also showed that although our population was aging, there was not a consistent increase in the number of total EMS responses. In fact, the number of total EMS responses for that portion of those 65 years or older randomly increased or decreased year to year.

What was interesting was to find that the age group 75 - 79 were the most likely to receive EMS service (22.9% of the total) yet represent only 18.4% of those 65 years or older. The group 80 - 84 represent 15.2% of the elderly population, but accounted for 20.2% of the EMS responses. This

would indicate that while the number of elderly in each age group decreases as they age, they tend to utilize the EMS system more frequently.

Many feel what will occur is people will be living longer, but they will be confronted with chronic, debilitating medical conditions later in life which will place an extreme burden on the health care system (Elston, 1990, as cited in Katz, Karuza).

The data on EMS responses 1989 - 1998 showed no steady increase in EMS calls for those 65 years of older. I personally feel that entering the millenium, we are on the edge of drastic increases in the number of elderly and the EMS responsibilities associated with the increase. Though seniors are living longer, they will be living at home, often alone, and will need the public EMS service when the inevitable decline in health begins.

With this increase, one should expect the cost of providing these services to increase when considering overtime wages, equipment, and training.

RECOMMENDATION

The aging of the population is inevitable. Statistics indicate that Americans are living longer and the ratio of those 65 years or older compared to the general population will continue to increase. As this segment of the population increases so will their need for EMS services.

The Boone Fire Department will begin to categorize the future and past types of injuries and illnesses that the elderly are incurring in an attempt to identify problem areas. To reduce these problem areas, those agencies that deal with the elderly in our community such as Boone County Public Health, local AARP association, Retired & Senior Citizens Volunteer Program, and the local Senior Citizen Center, will be contacted and partnerships will be developed to provide access to information and education. The Boone Fire Department will assist in developing and delivering programs to the elderly

on fire safety, traffic and pedestrian safety, medications education, and general safety concepts. These programs would be available to various elderly organization and upon request, provide one on one consultations for individuals.

Finally, the Boone Fire Department must find a source of revenue to offset the cost of providing EMS service. Typically those agencies that are not providing transport services are not eligible for reimbursement from insurance companies, Medicare, or Medicaid. We will submit two proposals to the Boone County Hospital. The first being a per call fee that will be assessed and collected by the hospital and payable to the Boone Fire Department. The second proposal would be to collectively arrive at a per year fee that would be paid annually to the Boone Fire Department. This flat fee would not be dependent on the number of responses and would be easier to administer and budget for the hospital. This second arrangement is being used in several communities within the state and seems to be agreeable to those involved.

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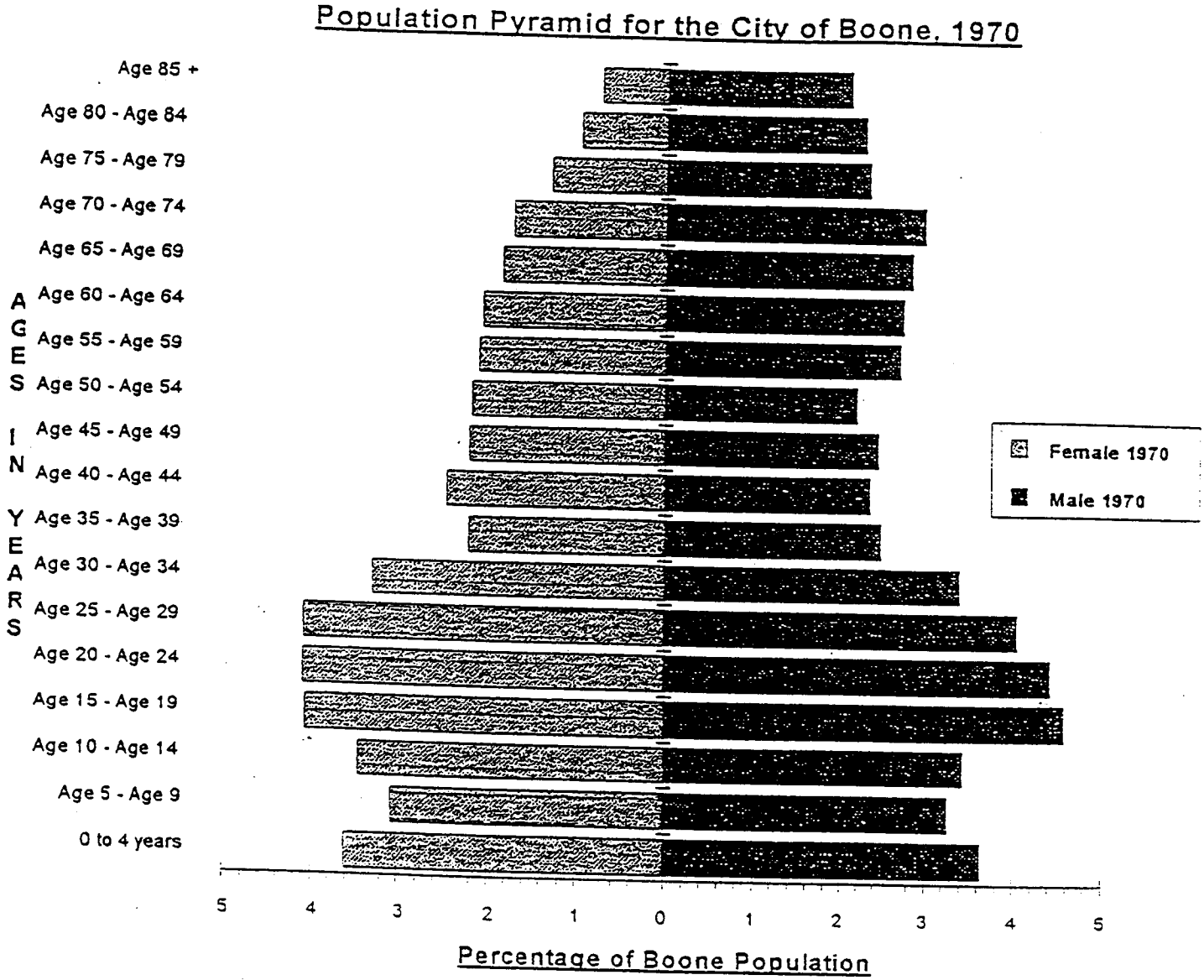
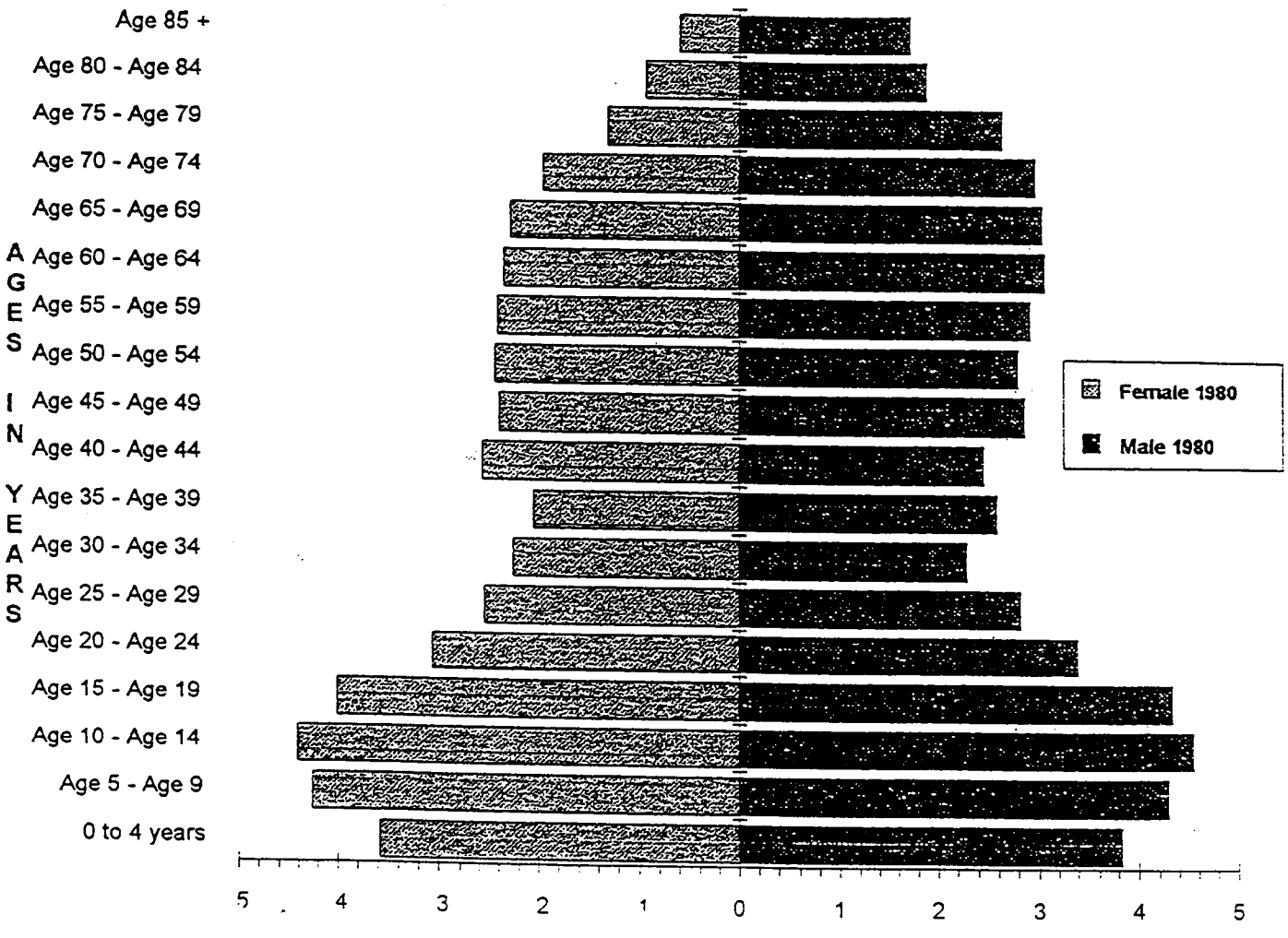
APPENDIX A


Population Pyramid for the City of Boone, 1970
Age 85 +
Age 80 - Age 84
Age 75 - Age 79
Age 70 - Age 74
Age 65 - Age 69
Age 60 - Age 64
Age 55 - Age 59
Age 50 - Age 54
Age 45 - Age 49
Age 40 - Age 44
Age 35 - Age 39
Age 30 - Age 34
Age 25 - Age 29
Age 20 - Age 24
Age 15 - Age 19
Age 10 - Age 14
Age 5 - Age 9
0 to 4 years
AGES IN YEARS
Female 1970
Male 1970
5 4 3 2 1 0 1 2 3 4 5
Percentage of Boone Population

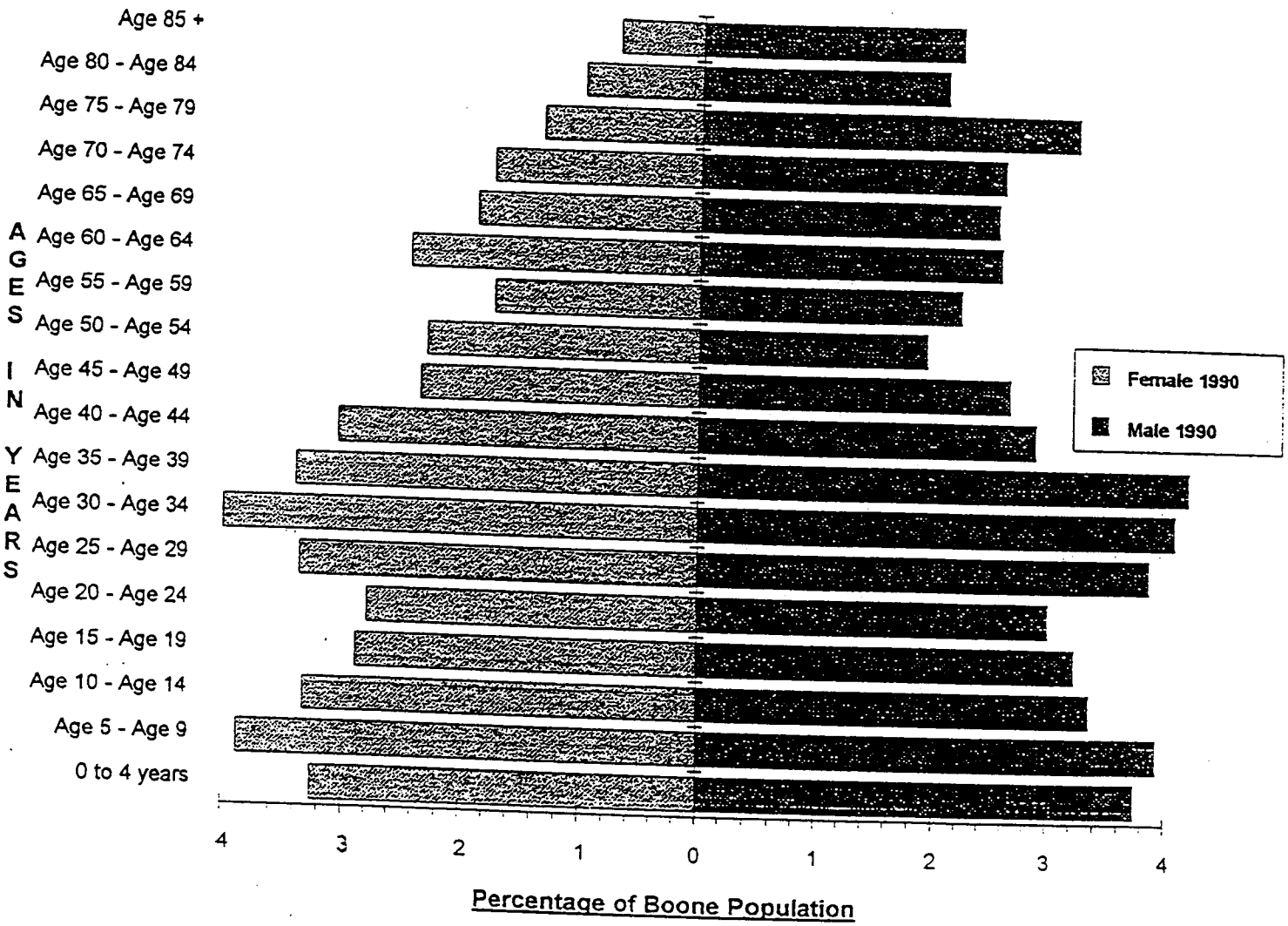
APPENDIX B

Population Pyramid for the City of Boone, 1980



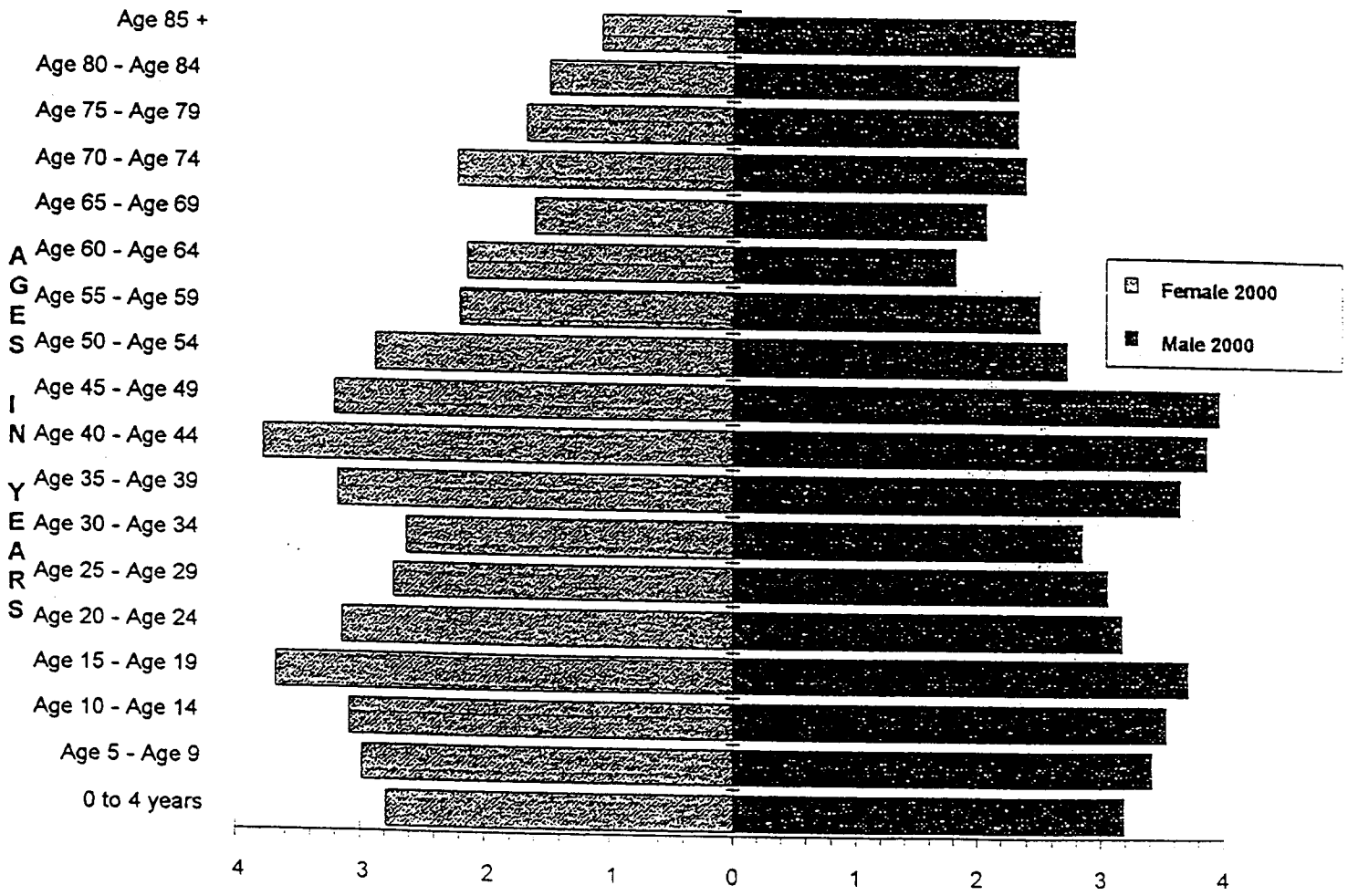
APPENDIX C

Population Pyramid for the City of Boone, 1990



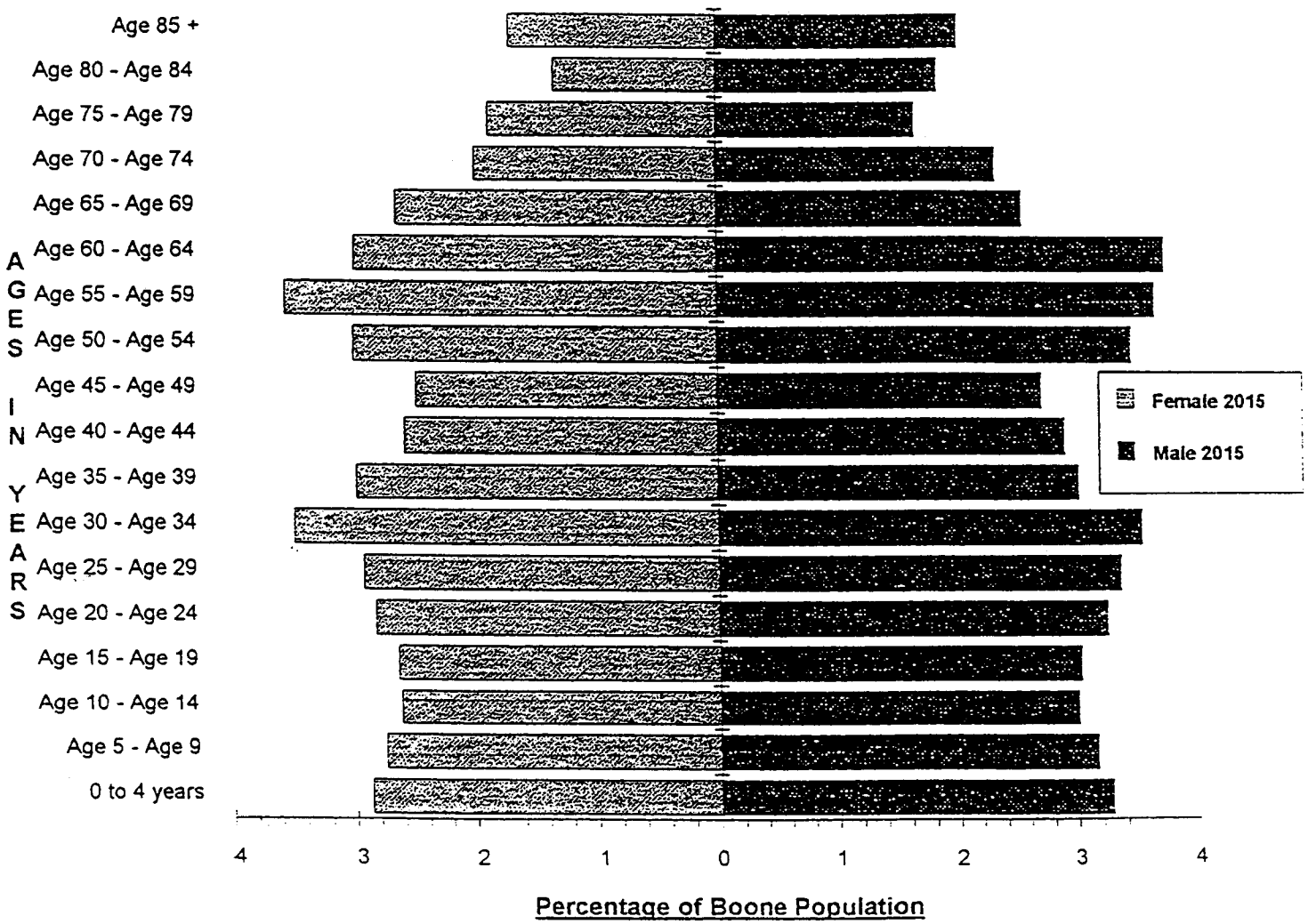
APPENDIX D

Population Pyramid for the City of Boone, 2000



APPENDIX E

Population Pyramid for the City of Boone, 2015



APPENDIX F
Pivot table - 10 year summation

Year	Data	Total	
1989	Sum of Younger than 65	228	
	Sum of 65 or older	209	
	Sum of Total civilian casualities	437	
1990	Sum of Younger than 65	284	
	Sum of 65 or older	273	
	Sum of Total civilian casualities	557	
1991	Sum of Younger than 65	230	
	Sum of 65 or older	273	
	Sum of Total civilian casualities	503	
1992	Sum of Younger than 65	162	
	Sum of 65 or older	339	
	Sum of Total civilian casualities	501	
1993	Sum of Younger than 65	289	
	Sum of 65 or older	262	
	Sum of Total civilian casualities	551	
1994	Sum of Younger than 65	307	
	Sum of 65 or older	260	
	Sum of Total civilian casualities	567	
1995	Sum of Younger than 65	235	
	Sum of 65 or older	290	
	Sum of Total civilian casualities	525	
1996	Sum of Younger than 65	289	
	Sum of 65 or older	205	
	Sum of Total civilian casualities	494	
1997	Sum of Younger than 65	313	
	Sum of 65 or older	216	
	Sum of Total civilian casualities	529	
1998	Sum of Younger than 65	327	
	Sum of 65 or older	226	
	Sum of Total civilian casualities	553	
Total Sum of Younger than 65		2664	51.10%
Total Sum of 65 or older		2553	48.90%
Total Sum of Total civilian casualities		5217	100.00%

APPENDIX G

Total				Total			
437	1989	Civilian casulties	% of 209	567	1994	Civilian casulties	% of 260
	65-69	35	16.75%		65-69	39	15.00%
	70-74	52	24.88%		70-74	44	16.92%
	75-79	44	21.05%		75-79	62	23.85%
	80-84	32	15.31%		80-84	57	21.92%
	85-89	36	17.22%		85-89	32	12.31%
	90-94	6	2.87%		90-94	19	7.31%
	95-99	4	1.91%		95-99	7	2.69%
	Total	209	47.83%		Total	260	45.86%
Total				Total			
557	1990	Civilian casulties	% of 273	525	1995	Civilian casulties	% of 290
	65-69	33	12.09%		65-69	38	13.10%
	70-74	56	20.51%		70-74	54	18.62%
	75-79	55	20.15%		75-79	66	22.76%
	80-84	71	26.01%		80-84	57	19.66%
	85-89	40	14.65%		85-89	44	15.17%
	90-94	12	4.40%		90-94	12	4.14%
	95-99	6	2.20%		95-99	19	6.55%
	99+	0	0.00%		99+	0	0.00%
	Total	273	49.01%		Total	290	55.24%
Total				Total			
503	1991	Civilian casulties	% of 273	494	1996	Civilian casulties	% of 205
	65-69	33	12.09%		65-69	23	11.22%
	70-74	50	18.32%		70-74	35	17.07%
	75-79	66	24.18%		75-79	51	24.88%
	80-84	49	17.95%		80-84	44	21.46%
	85-89	44	16.12%		85-89	39	19.02%
	90-94	23	8.42%		90-94	11	5.37%
	95-99	7	2.56%		95-99	2	0.98%
	99+	1	0.37%		99+	0	0.00%
	Total	273	54.27%		Total	205	41.50%
Total				Total			
501	1992	Civilian casulties	% of 339	529	1997	Civilian casulties	% of 216
	65-69	35	10.32%		65-69	34	15.74%
	70-74	81	23.89%		70-74	21	9.72%
	75-79	71	20.94%		75-79	47	21.76%
	80-84	75	22.12%		80-84	38	17.59%
	85-89	41	12.09%		85-89	52	24.07%
	90-94	30	8.85%		90-94	18	8.33%
	95-99	4	1.18%		95-99	6	2.78%
	99+	2	0.59%		99+	0	0.00%
	Total	339	67.66%		Total	216	40.83%
Total				Total			
551	1993	Civilian casulties	% of 262	553	1998	Civilian casulties	% of 226
	65-69	26	9.92%		65-69	25	11.06%
	70-74	45	17.18%		70-74	31	13.72%
	75-79	68	25.95%		75-79	55	24.34%
	80-84	56	21.37%		80-84	37	16.37%
	85-89	38	14.50%		85-89	51	22.57%
	90-94	25	9.54%		90-94	21	9.29%
	95-99	4	1.53%		95-99	2	0.88%
	99+	0	0.00%		99+	4	1.77%
	Total	262	47.55%		Total	226	40.87%